ALLEGHENY COUNTY DEPARTMENT OF HUMAN SERVICES

Using Predictive Modeling to Improve Outcomes

For Children in Allegheny County

Training for Child Welfare Professionals

Agenda

- Objectives
- Overview of Predictive Analytics/Predictive Risk Modelling
- Application of Predictive Analytics in Allegheny County
- Policy/Practice
- Case scenarios
- Process changes
- KIDS Changes/Design
- Questions

Objectives

By the end of this training, participants will be able to...

- Understand the basics of Predictive Analytics/Predictive Risk Modeling
- Describe how the Family Screening Score will be generated in KIDS
- Understand what the Family Screening Score means
- Explain how the Family Screening Score is to be included in making screening decisions and the policy for its use
- Understand the addition of dynamic text from Client View to a referral in KIDS

What is Predictive Risk Modeling?

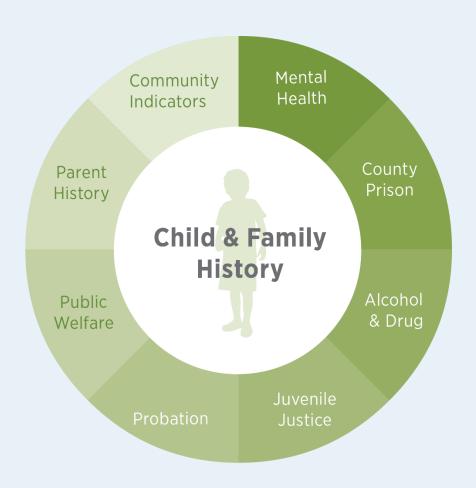
What is Predictive Risk Modeling?

- Use data already collected about each child to evaluate the possibility of future adverse outcomes
- Why consider predictive risk modeling?
 - Wider availability of high quality information about service interactions that can inform our understanding of risk and protective factors
 - Advances in technology and analytic capabilities- we can use these data in real time rather than retrospective analyses
 - Difficulty in weighting complex factors (and time is scarce!)

How is Predictive Analytics Being Applied in Allegheny County?

Developing a Screening Score

- We developed a partnership with a research team based in New Zealand
- We shared Allegheny County data with the research team to analyze for factors that would be predictive of future maltreatment
- Call screening was selected as the decision point at which a model would be developed and used
- The team developed a model that includes more than 100 pieces of information
- This screening score is comprised of the likelihood of re-referral, given screen-out and the likelihood of placement in foster care, given screen-in

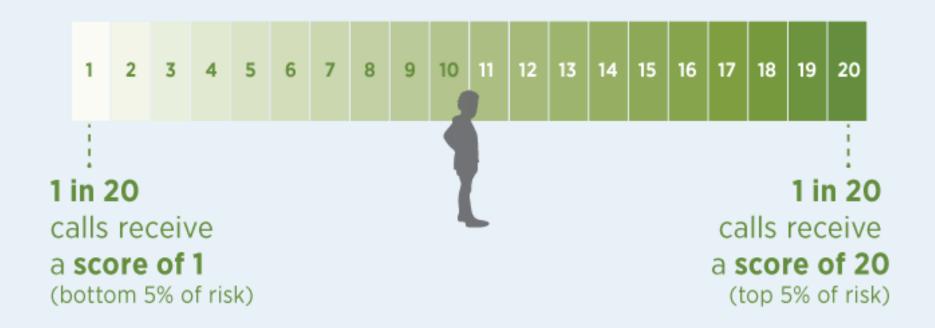


Running a Screening Score

- The tool is called the Allegheny Family Screening Tool
- The score that will be produced is called the Family Screening Score
- The score will be run in the KIDS system which will harvest data from the data warehouse*
- At each call, a screening score will be run for each child associated with an allegation of maltreatment
- Only one score will be displayed to the screener- the highest score for the highest child on that referral
- The score only applies at call screening
- The score will **only be viewed by call screeners** and call screening supervisors
 - It will not be seen by investigators or ongoing workers and it is expected that call screeners will not share the score with others

Developing a Screening Score

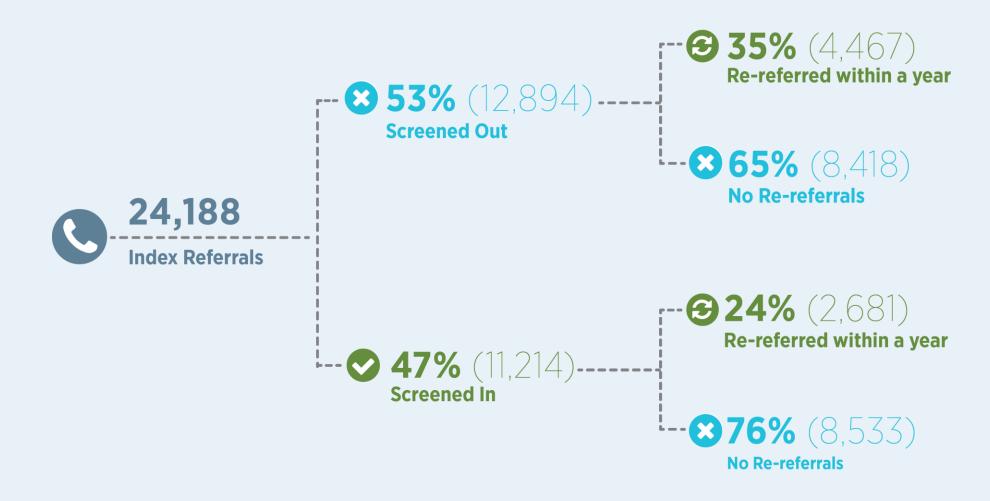
- The screening score is from 1 to 20 (with a subset of referrals being mandatory screen ins)
- The higher the score, the higher the chance of the future event (e.g., abuse, placement, re-referral) according to the data



But will it work? Will it actually give me a score that reflect this family's likelihood of future maltreatment?

To test that, we scored thousands of historical maltreatment calls and then followed the children in subsequent referrals to see how often the model was correct...

Developing the model





The Results: Re-Referrals



with a score of 1 were re-referred within two years of the call.



with a score of 20 were re-referred within two years of the call.

The Results: Out-of-Home Placements









who received
a score of 20 were placed
out-of-home within
2 years of the call

Under current practice:

27% of highest risk cases
were screened out —
of these, 1 in 3 are re-referred
and placed within 2 years of the
initial screened out call

48% of lowest risk cases
were screened in —
only 1.4% of those
are placed within 2 years.

Approaches to Assessing Risk

	PA Risk Assessment	Family Screening Score
Definition	Likelihood of future maltreatment	Likelihood of future re-referral or placement
Based on	Clinical judgement of worker	Data driven
Timeframe	Future	Within two years of call
Type assessed	Acute and chronic	Chronic only
Considers	All aspects of the family life relevant to future maltreatment (allegations, family stressors, prior history)	All factors found to be predictive through modeling of all Data Warehouse variables for CYF referrals 2010 - 2013
Includes	15 factors	Over 100 factors
Applies	At all critical child welfare decision points and when new information arises	Only at call screening decision
Output	Overall Severity: seriousness of what has happened Overall Risk: likelihood of future harm	Highest score for highest child for likelihood of either re-referral or placement

What is the Policy and Process for Using the Family Screening Score?

Policy

The Allegheny County Office of Children, Youth, and Families (OCYF) Call Screening Department will employ the Allegheny Family Screening Tool as one of the tools used in determining a screening decision for all incoming referrals.

Call Screener Findings Rick Rating ** Cover Risk (1)				
Risk Rating * Low Risk (L)				
Safety Rating* Safety Rating*	ner Findings			
Please review the family screening score after entering the risk and safety ratings * Call Screener Recommendation * Accept for Investigation Assign CPS Investigation to Active Caseworker Reason(s) for assigning to Field Screening Unit Referral/Case ID Find Select Response Time* Inmediate Priority (Within 24 hours)		c Rating *		<u></u>
Please review the family screening score after entering the risk and safety ratings * Current Screening Score				
Call Screener Recommendation * Accept Open Investigation Call Screener Recommendation * Accept Open Investigation Accept Open Investigation Call Screener Recommendation * Accept Open Investigation Call Screening Unit Call Screening Uni		ety Kating*		Ç.
Predisposition Assign GPS Investigation to Active Caseworker Reason(s) for assigning to Field Screening Unit Referral/Case ID Find Select Response Time* Immediate Priority (Within 24 hours)	Screening Score ener Recommendation *	2		B:59 AM
Assign GPS Investigation to Active Caseworker Reason(s) for assigning to Field Screening Unit Referral/Case ID Find Select Response Time Immediate Priority (Within 24 hours)	or Investigation	1		
Referral/Case ID Find Select Disposition Response Time* Immediate Priority (Within 24 hours)	ssign GPS Investigation to	Assign to Field Screening Unit		
Disposition Response Time* Immediate Priority (Within 24 hours)		eason(s) for assigning to Field Screening Unit	:	Reason for Recommendation
Open Investigation Screen Out Response Time* Immediate Priority (Within 24 hours)		Select		
Open Investigation	n		Response Time*	
			Immediate	5)
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Now we know what it is, we know what it will look like, we know how to run it.

But, how does it impact our decision making?

Let's look at some case scenarios...

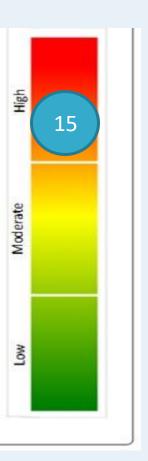
• Referral date: 4/2015

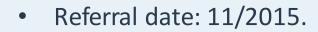


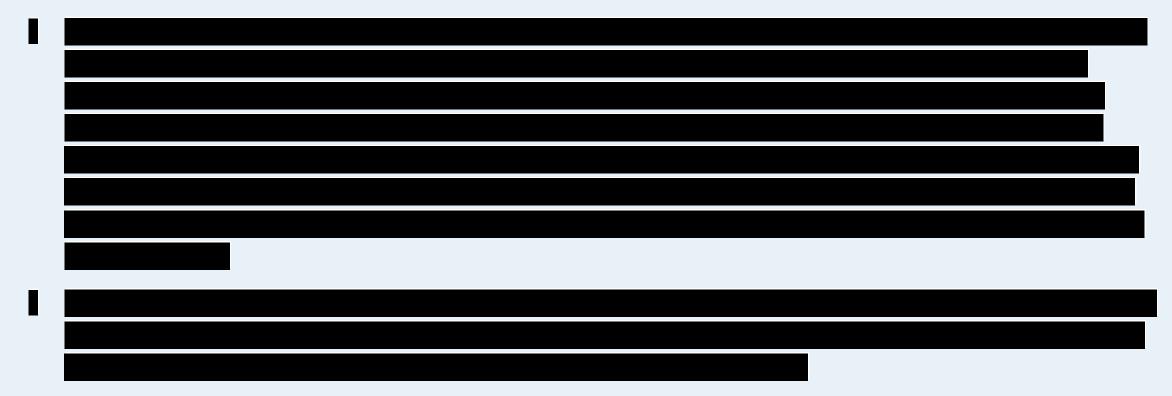
You said we should:

• The screening score was:

Does that change your decision?



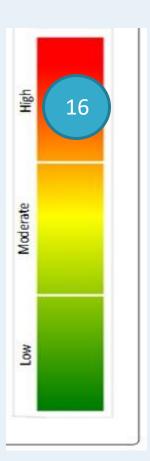




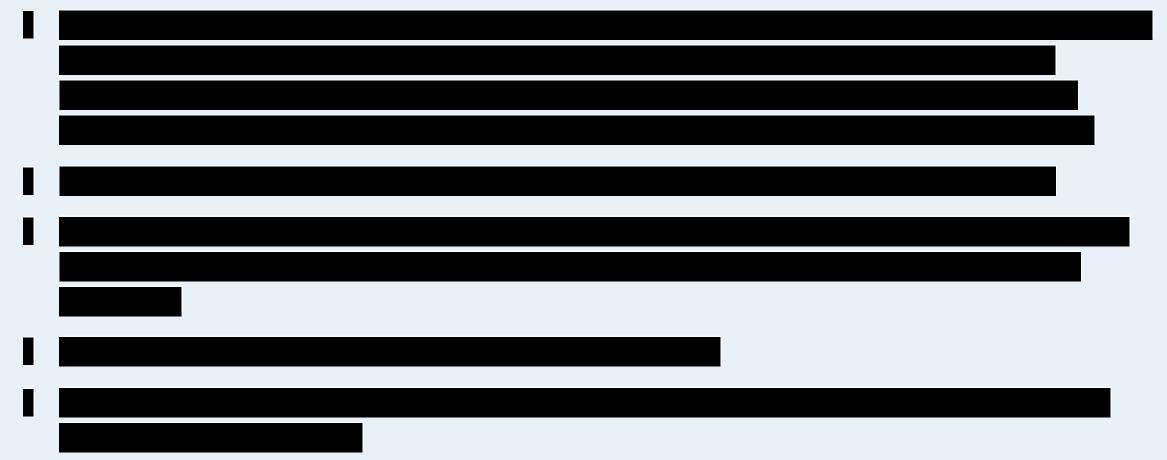
You said we should:

• The screening score was:

Does that change your decision?



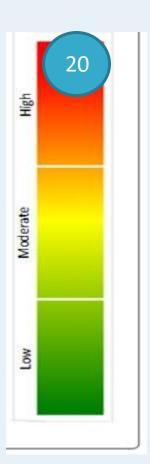
• Referral date: 3/2014



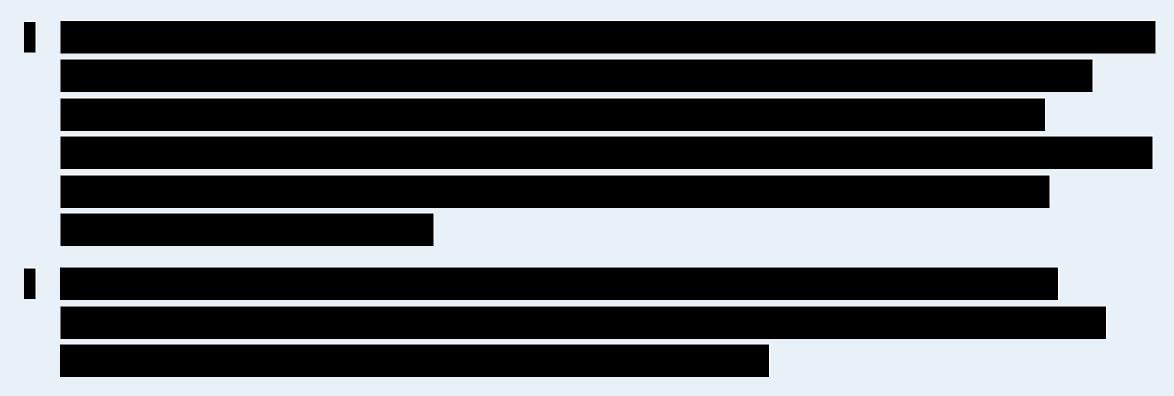
You said we should:

• The screening score was:

Does that change your decision?



• Referral date: 12/2015



You said we should:

• The screening score was:

Does that change your decision?



Questions?